

Implementation Procedure Summary for Bridge Inspection

Introduction:

UAS can decrease inspection time and result in significant cost savings from reduced field time. They supplement existing tools to provide various data regarding bridge elements conditions to collect asset inventory and effectively inform maintenance, repair, and rehabilitation schedules. The steps below illustrate procedures to assist with the successful implementation of using UAS for bridge inspection.

Define Mission Objectives

- Data Collection Goals (Substructure, Superstructure, and Deck Elements)
- Timeframe
- Complexity of Bridge Environment

Develop System and Staffing Plan

- Team Selection (Internal or Consultants)
- Aircraft Platform (Fixed Wing or Rotorcraft)
- Sensor Selection (RGB Camera, Lidar, Thermal, Multi-spectral)
- Software

Develop Flight Plan and Conduct Risk Assessment

- Pre-Flight Plan to Meet Goals
- Site and Operation Analysis for Risk (Weather, Airspace, Traffic, Population, Private Property)
- Complexity of Bridge Environment (Lighting, Wildlife, Traffic)

Obtain Permits or Waiver

- LAANC
- COA
- National Park
- Airport

Obtain Approval and Perform Flight Operations

- UAS Manager Approval
- Site Preparation (Lane Closures, Take-off and Landing Sites, Signage)
- Perform Flight

Assess Outcomes and Document Lessons Learned

Data Management

- Data Processing Required
- Storage
- HD Video Livestream
- Deliverable Formats